4 channel Data Recorder DA-21

32 GB & 8 channels

Support for high-capacity memory cards up to 32 GB

Inter-unit synchronization: max. 8 channels
The 4 channel Data Recorder DA-21 is capable of recording acoustic / vibration waveforms and various electrical signals in the field. Recorded data are saved in WAVE format on SD cards and can be imported into a computer for waveform analysis and other processing tasks.

4 channel Data Recorder

DA-21

- Rotary pulse input connector
- Remote controller connector (8-pin mini DIN)
- DC IN connector
- Input connectors (BNC)
- Unit to Unit connector
- Voice input connector (Φ3.5 4-pole mini jack)
- External trigger connector (Φ2.5 stereo mini jack)
- Voice input connector (Φ2.5 stereo mini jack)
- Monitor out connector (Φ3.5 stereo mini jack)
- Output connectors (Φ2.5)
- USB port (USB mini B)

Playback of recorded data supported
Silent operation without any moving parts. Able to operate also in difficult environments subject to vibration and humidity.
Voice memo recording function
Bar graph provides visual level indication

Measurement screen

Menu screen

Software
DA-21 data can be displayed and analyzed in various software packages

Viewer Software
AS-70 Viewer

- 4 channel display screen example
- Operating environment requirements

Waveform Analysis Software
AS-70

- Waveform analysis screen example
- Adds octave and FFT analysis
- Specification: waveform analysis
- Frequency characteristic
- FFT analysis
- Time weighting
- octave band analysis

Viewer software AS-70 Viewer / Waveform Analysis Software AS-70
- CPU : Intel Core i5 2 GHz or faster
- RAM : 2 GB or more, 4 GB recommended
- HDD : 20 GB or more

Waveform analysis software CAT-WAVE
- CPU : Intel Core i5/i7 1.4 GHz or more (Core2 Duo 2 GHz or more)
- RAM : 2 GB or more
- HDD : 60 GB or more (free space required)

4 channel display screen example

Graph Display types
Amplitude waveform, level waveform

Frequency weighting
Z, A, C, G to A, horizontal vibration characteristics,
vertical vibration characteristics

Time weighting
10 ms, F (Fast), 630 ms, S (Slow), 10 s

Statistical processing
Amplitude waveform
Mean value, minimum value, maximum value, effective value

Time weighting
1/2/3/4 second, 60/120/180/240 second

Specifications
- Reads WAVE format files produced by the DA-21 and enables functions such as waveform display, level display, file output (WAVE format/CSV format), and playback. Display of inter-unit synchronization data is also supported.
Improvements compared to predecessor model DA-20

- Support for high-capacity SD cards (max. 32 GB)
- Quantization 24 bit also supported
- Use as USB storage supported (recognized as removable disk)
- Additional rotary signal input (dedicated connector)
- Inter-unit synchronization (max. 8 channels)
- Separate input and playback output connectors
- Time trigger function added

System Configuration

(Other equipment is optional)

- Preampifier NH-22
- Oscilloscope Signal Analyzer SA-02
- Waveform Analysis Software CAT-WAVE
- Voice memo microphone
- Remote Controller
- Charge Converter VP-40
- 3-Axis Piezoelectric Accelerometer PV-97C / PV-93
- 3-Axis Piezoelectric Accelerometer PV-97C / PV-93
- A/B/C/D
- DA-21
- Soft Carrying Case

Waveform Analysis Software CAT-WAVE

This software is a product of Catec Inc.

Spectrum map screen example

Reads WAVE format files produced by the DA-21 and enables functions such as octave band analysis, 1/3 octave band analysis, and FFT analysis. Inter-channel processing functions such as cross spectrum and transfer function, as well as 1/12 octave band analysis are also possible. (Tracking analysis can be added as an option.)

Specifications

- Operating conditions
  - Temperature: 0°C to 40°C
  - Humidity: 20% to 80% With no condensation
- Storage conditions
  - Temperature: -20°C to 70°C
  - Humidity: 10% to 90% With no condensation

Battery Life

- Using four IEC R6 (size AA) alkaline batteries
  - Approx. 8 hours
- Using Battery Pack BP-21A with four IEC R20 (size D) alkaline batteries
  - Approx. 30 hours

Support for high-capacity memory cards up to 32 GB

Portability

- Max. 8 channels
- Inter-unit synchronization

Features

- Time trigger function added
- Support for high-capacity SD cards (max. 32 GB)
- 24 bit quantization
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Specifications

- Waveform
  - Display: Scaled time axis, Differential and integral calculation available
  - FFT analysis
    - Sampling points: 64 to 32 768 points
    - Display function: Power spectrum, cross spectrum, transfer function, Coherence, Power spectrum map, Differential and integral calculation for spectrum area
- Octave analysis
  - Octave band: 0.5 Hz to 16 kHz
  - Frequency range: Octave band, 1/3 octave band, 1/10 octave band
  - Time weighting characteristic: 1 ms, 10 ms, 35 ms, 10 s
- Frequency weighting characteristic: FLAT, A, C

Spectrum map screen example

- DA-21
- USB Cable
- Computer
- Option
- View Software AS-70 Viewer
- Waveform Analysis Software AS-70
- Throughput Disk CAT-SA02-TH
- Option
- Multi-Channel Signal Analyzer SA-02

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### DA-21

**Specifications**

**4 channel Data Recorder**

**Input Connectors**
- Signal input: 4 channels (BNC)
- Input impedance: 100 kΩ or more
- Max. input voltage: ±13 V
- Overload: +2.0 dB ±1.0 dB at range full-scale
- Input coupling: AC/DC (AC coupling (primary) -3.0 dB ±1.0 dB at 0.315 Hz)
- Filters (digital): High-pass OFF, DC, 5 Hz (−3 dB ±1.0 dB), 12.5 Hz, 25 Hz (−3 dB ±1.0 dB) (−12 dB / oct)

**DC coupling**
- DC to 1 Hz: ±1.0 dB
- 1 Hz to 12.5 kHz: ±0.5 dB
- 12.5 kHz to 20 kHz: ±0.0 dB

**AC coupling**
- 1 Hz: ±1.0 dB
- 1 Hz to 12.5 kHz: ±0.05 dB
- 12.5 kHz to 20 kHz: ±0.025 dB

**Frequency response (Frequency range)**

- Input (BNC): DC to 10 kHz, ±0.5 dB
- BNC: DC to 10 kHz, ±0.05 dB

**Input Impedance**
- ±13 V

**Output Connectors**
- Output voltage: ±3.16 V at range full-scale

**Operation**

- Rotary pulse
- Input impedance: 100 kΩ or more
- Input voltage range: 0 to 10 V open collector

**Voice memo**
- Voice memo function
- 2 operation modes
- A: Recording in stand by state
- B: Revolution speed channel is always used as voice memo during recording
- Revolution speed function is disabled while using voice memo function

**Display**
- LCD: 256 x 160 dots (Monochromatic LCD, with backlight)

**Customizing**
- Screen: Setting screen, recording screen, level bars, level history
- LEDs: Status indication (record, playback, trigger standby, etc.)

**Supplied Accessories**
- Soft Carrying Case (with shoulder strap)
- Monitor earphone
- Battery pack
- AC adapter

**Option**

- Waveform analysis software
- Waveform analysis software
- Charge Converter
- Memory card
- Battery pack
- Cigarette lighter adapter
- 4-channel data recorder remote controller
- Voice memo microphone
- Monitor earphone
- Soft Carrying Case

**Input Connectors**

**Output Connectors**

**Battery life**
- Using alkaline batteries: 20 kHz, 4 channels, CCLD OFF: approx. 7.5 hours

**Power consumption**
- 1 channel (voice memo microphone 3.5 mm. 4-pole mini jack)

**Specifications subject to change without notice.**

**Distributed by:**
- RION CO., LTD.

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**Manufactured by:**
- 3-20-41, Higashimotomachi, Kokubunji, Tokyo 185-8533, Japan

**REVIEW**

**Maximum recording times on memory card (SD card) (Approximate)**

### 32 GB SD card

<table>
<thead>
<tr>
<th>Frequency range (Hz)</th>
<th>100 Hz</th>
<th>500 Hz</th>
<th>1 kHz</th>
<th>5 kHz</th>
<th>10 kHz</th>
<th>20 kHz</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1068 h 42 m</td>
<td>162 h 7 m</td>
<td>312 h 42 m</td>
<td>64 h 12 m</td>
<td>54 h 22 m</td>
<td>55 h 18 m</td>
</tr>
<tr>
<td>2</td>
<td>1755 h 36 m</td>
<td>280 h 8 m</td>
<td>605 h 13 m</td>
<td>104 h 43 m</td>
<td>90 h 13 m</td>
<td>96 h 11 m</td>
</tr>
<tr>
<td>3</td>
<td>554 h 24 m</td>
<td>94 h 2 m</td>
<td>193 h 6 m</td>
<td>38 h 7 m</td>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>108 h 57 m</td>
<td>15 h 2 m</td>
<td>31 h 6 m</td>
<td>61 h 9 m</td>
<td>54 h 22 m</td>
<td>56 h 2 m</td>
</tr>
<tr>
<td>2</td>
<td>173 h 6 m</td>
<td>25 h 9 m</td>
<td>57 h 6 m</td>
<td>90 h 6 m</td>
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**Notes:**
- Specifications subject to change without notice.
- This product is environment-friendly. It does not include toxic chemicals on our policy.
- This leaflet is printed with environmentally friendly UV ink on recycled paper.

**http://svmneas.rion.co.jp/**

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